



COLLEGE OF ENGINEERING SCIENCE AND TECHNOLOGY

SCHOOL OF ELECTRICAL & ELECTRONICS ENGINEERING

FINAL EXAMINATION-PENSTER 1-2013

C IV CEN5

EEE422 : TELEVISION SYSTEM

DAY/TIME :

TIME :

INSTRUCTIONS TO STUDENTS

1. You are allowed 10 minutes EXTRA time during which you are not to write.
2. Write your candidate number on the top of each sheet of the answer booklet.
3. Write all your answers in the ANSWER BOOKLET provided.
4. For all sheet of papers on which rough/draft work has been done, cross it through and attach these to your answer script.
5. There are SEVEN QUESTIONS worth a total of 130 MARKS.
6. Attempt all questions

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QUESTION ONE

Complete each statement by filling the blank with the correct word or number.

11. In the television system used in Fiji, the bandwidth of channel 5 is equal to _____ and the bandwidth of channel 7 is equal to _____ while the bandwidth in a UHF channel is _____.
12. In a television channel used in Fiji the two carriers used are for _____ and _____ while the two carriers used in the American system are for the _____ and _____.
13. In colour television, _____ is the movement of the three electron beams.
14. Interlaced scanning is applied to eliminate _____.
15. The complete frame of a TV picture is scanned _____ times a second in the PAL system, and scanned _____ times a second in the NTSC system.
16. The line frequency or scanning frequency of a NTSC television system is _____ Hz and that of the PAL system is _____ Hz.
17. In television, the Y signal is also called the _____ signal which corresponds to amount of perceived brightness from a light source.
18. It is possible to create any colour including white by additive mixing of _____, _____ and _____ colour light in suitable proportions.
19. In each frame of a NTSC television system there are _____ lines whereas in each frame of a PAL system there are _____ lines.
20. In a television receiver being switched on with the _____ seen on the screen is an indicating that the scanning process is fully functional.

20 marks

QUESTION TWO

Match each term on the left hand side (LHS) to its meaning on the right hand side(RHS). Write the letter representing the meaning on the ANS column and transfer the question number with your answer to your answer booklet.

	LHS	ANS	RHS	
1	EHT voltage		Used to reduce danger of electrical shock	a.
2	Prevent accident		The test before returning a TV Rx to a client	b.
3	Thick rubber shoes		Another name of the anode of a television receiver	c.
4	Discharging a set		Used in TV Rx to produce the highest voltage	d.
5	Ultor		Wear when using spray cans or when work on CRT	e.
6	Personal safety		Present on the anode of a television receiver	f.
7	Eye protection		Remove all metal jewelry from hands when work on TV	g.
8	Isolation transformer		When adhering to safe working practices	h.
9	Tripler		Used for safety while working around the TV Rx	i.
10	Leakage test		Must be done soon after removing a TV receiver	j.
11	Degausser		Carry the highest voltage from the flyback transformer	k.
12	Triad		Operate only on switching on of a TV Rx	l.
13	Retrace interval		The ratio of frame width distance to frame height distance of TV picture	m.
14	Deflection yoke		The part that emit electrons when heated up	n.
15	Pixel		Types of electron gun	o.
16	Thickest cable		A circuit to demagnetize the CRT	p.
17	Cathode		Time it takes an electron beam to move from one end of a line to the start of another	q.
18	Aspect ratio		The smallest resolved area in a video scanning technique or picture element.	r.
19	ADG		Where three phosphor dots located	s.
20	Inline , delta		Usually mounted on the neck of the CRT	t.

20 marks

QUESTION THREE

Write the letter T if the statement is true and the letter F if its false. Clearly write the question number with answer beside it.

1	Screen persistence is the time that it takes for light emitted from the screen to decay to 63 % of its maximum value	T	F
2	For picture tube persistence must be less than 1/30 sec so that one frame does not persist into the next causing the object in motion to be blurred.	F	T
3	For picture tube a typical decay time is 5 mSec or 0.005 sec.	T	F
4	Aquadag is a coating on the inner part of the television screen with black graphite material	F	T
5	Practically all picture tubes today with aluminized screen have a very thin layer of aluminum on the inside surface of the phosphor screen toward the electron gun.	T	F
6	The anode of a 21 inch-colour television has 30 kV sitting on it when the power is on.	F	T
7	The ultor of a 25 inch-colour television has 20 kV sitting on it when the power is on.	F	T
8	The anode capacitance is quite high with a typical value being 2000 pF for a 25-inch tube.	T	F
9	Hold-Down Circuit is for protection against x-ray radiation from colour picture tubes.	T	F
10	A natural and eventual cause of picture tube failure is los of emission at the cathode	T	F
11	In order to eliminate x-ray radiation the high voltage must increase slowly	F	T
12	The symptom of low cathode emission is a dim picture	T	F
13	The symptom of a weak red gun is a cyan picture	F	T
14	Cyan and red make white	T	F
15	Magenta and green make white	T	F
16	Yellow and blue make white	F	T
17	Red and green make yellow	T	F
18	Red and blue make magenta	T	F
19	Green and blue make cyan	F	T
20	Red, green and blue make white	F	T

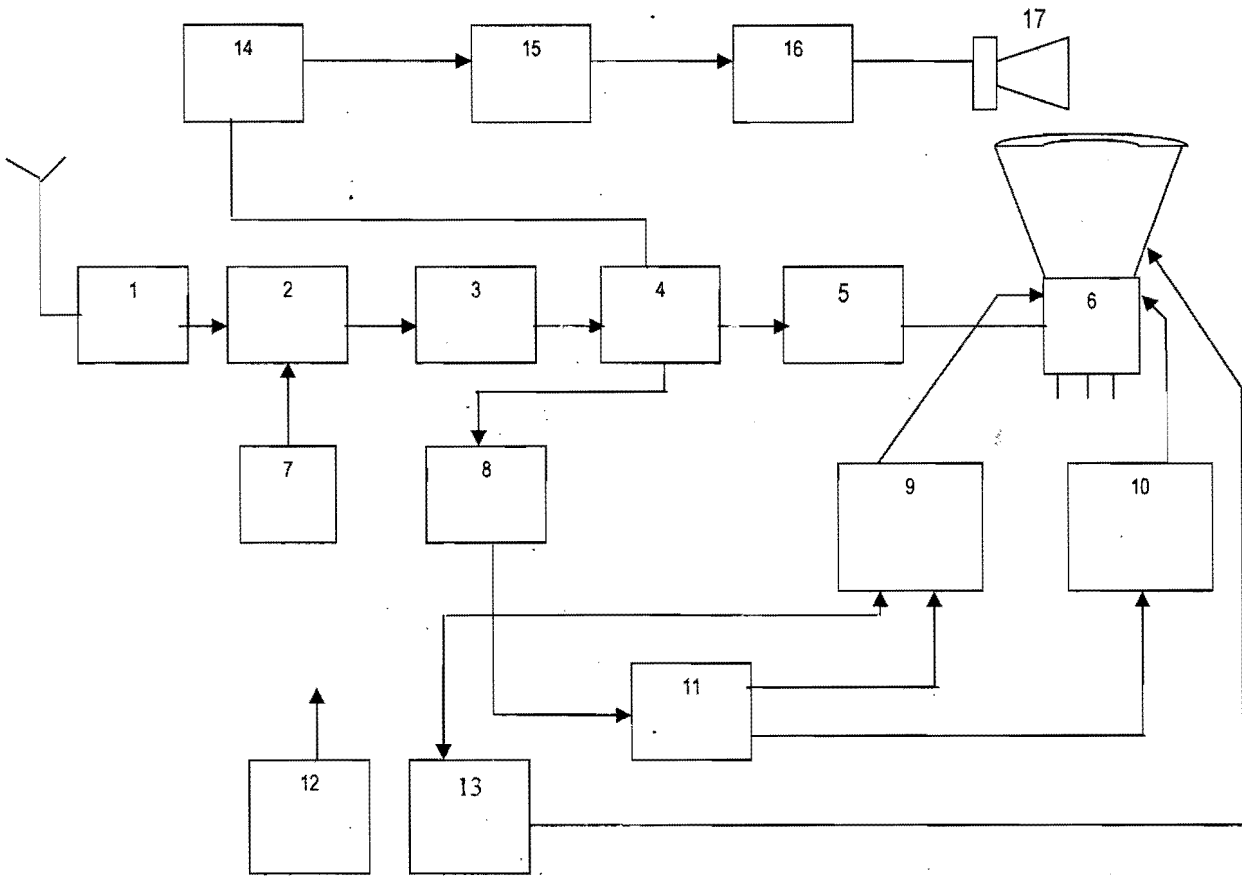
10 marks

QUESTION FOUR

1. Refer to the diagram below and name this block diagram (1 mark)

2. Write clearly in your answer sheet the number of each block and beside it the name of the block? (8 marks)

3. Name three transducers used in the diagram and state the function of each? (6 marks)



1		10	
2		11	
3		12	
4		13	
5		14	
6		15	
7		16	
8		17	
9			

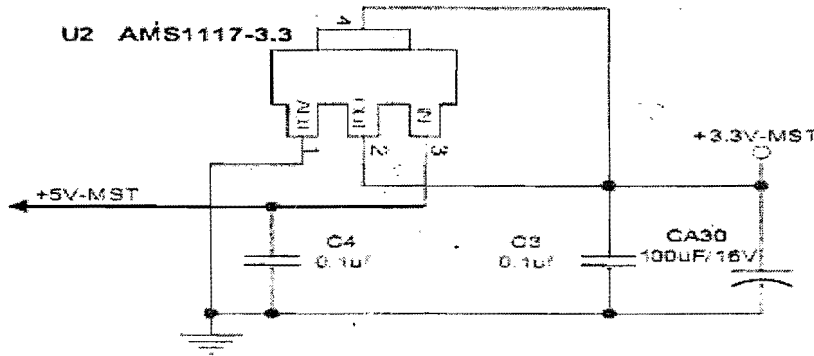
[15 marks]₆₅

QUESTION SEVEN

1. Below is part of a circuit in a LCD television. A fault occurring was that, *the TV channel automatically changing*. During fault finding 3.7 volts was measured where 3.3 volts is marked on the circuit to be present. .

Comment on this case to clearly demonstrate symptom and cause of fault or problem ?

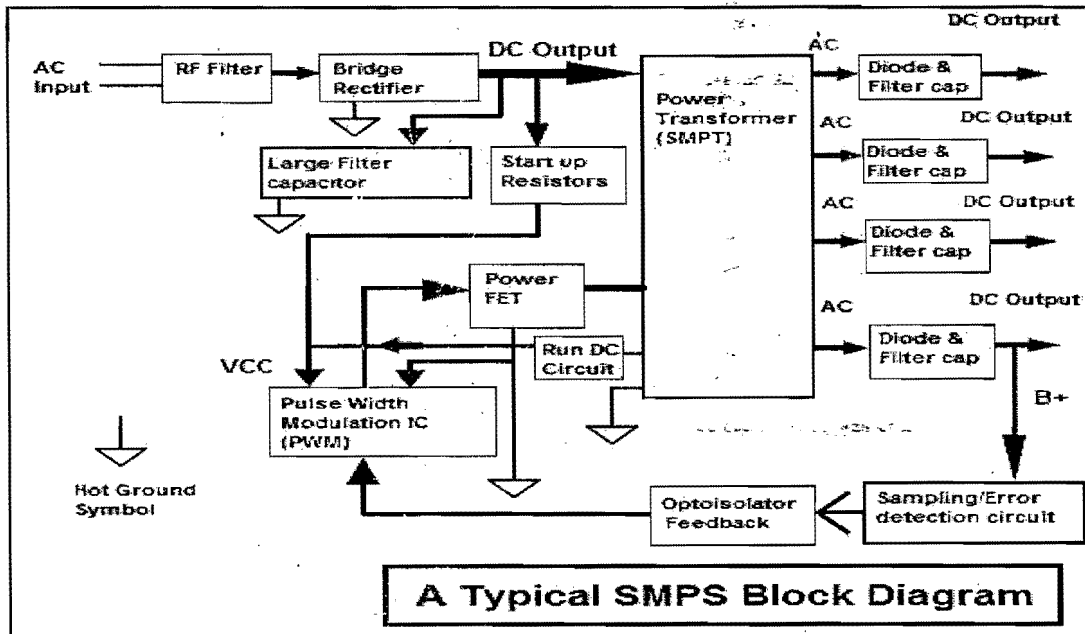
(5 marks)



2. (i) Name the block diagram below and state the function of ?

(10 marks)

- (ii) RF Filter?
- (iii) Bridge Rectifier?
- (iv) Large Filter Capacitor?
- (v) Start up Resistor?



[15 marks]₁₂₀

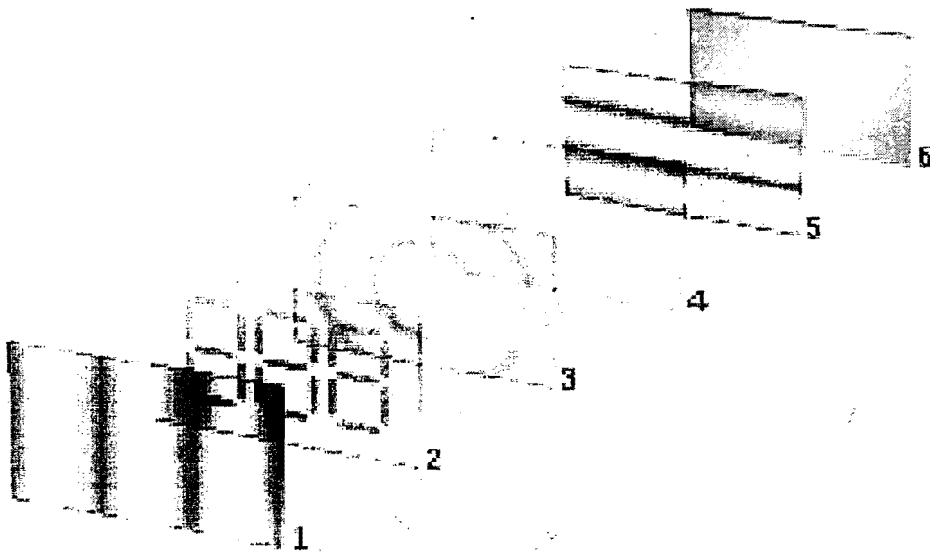
3. The diagram below shows a basic structure of LCD display .

(i) Name and briefly explain each layer (1-6) and ?

(7 marks)

(ii) Comment on advantages and disadvantages of LCD over CRT ?

(3 marks)



[10 marks]₁₃₀